

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
MIDLAND-ODESSA DIVISION**

HEADWATER RESEARCH LLC,

*Plaintiff,*

v.

AMAZON.COM, INC., AMAZON.COM  
SERVICES LLC, and AMAZON WEB  
SERVICES, INC.,

*Defendants.*

Case No. 7:25-cv-00286

**Complaint for Patent Infringement**

**JURY TRIAL DEMANDED**

**COMPLAINT FOR PATENT INFRINGEMENT**

This is an action for patent infringement under the Patent Laws of the United States, 35 U.S.C. § 1 et seq., in which Plaintiff Headwater Research LLC (“Headwater”) alleges as follows against Defendants Amazon.com, Inc., Amazon.com Services LLC, and Amazon Web Services, Inc. (collectively, “Amazon”):

**INTRODUCTION**

1. This complaint arises from Amazon’s unlawful infringement of U.S. Patent Nos. 9,615,192 (“’192 patent”) and 10,321,320 (“’320 patent”) (collectively, “Asserted Patents”).

2. A core aspect of the accused systems is Amazon Device Messaging (“ADM”). As detailed below, Amazon reaps substantial revenues and competitive advantages from ADM and its infringement of the Asserted Patents.

3. ADM provides the only push channel for Fire tablets, Fire TV, Echo Show, and other Amazon-branded devices. Every app developer that wants to send real-time push messages on those devices must integrate ADM.

4. Amazon uses ADM to push deal alerts, Prime Video trailers, Kindle Daily Deals, etc., and re-engage “cart abandon” users. Push notifications have dramatically higher open-rates than email/SMS, which translates into more conversions and time-on-device. <https://aws.amazon.com/blogs/messaging-and-targeting/push-notification-engagement-metrics-tracking/> (“Push notifications is a preferable channel of communication as it notifies your app users even when they are not on your app. This increases app engagement and probability of customers to convert. Additionally, users who download your app but don’t register, can still be targeted and receive your messages.”).

5. ADM keeps Amazon devices awake and reachable, enabling Amazon to further drive and monetize engagement through delivery of lock-screen/wake-screen ads and notifications intended to prompt continued device usage.

6. Amazon also uses ADM to collect behavioral user data and generate additional revenue. *Id.* (“Measuring success of your communications is paramount for optimizing future customer engagements. Amazon Pinpoint push notifications offer the following three events: `_opened_notification` – This event type indicates that the recipient tapped the notification to open it; `_received_foreground` – This event type indicates that the recipient received the message as a foreground notification; `_received_background` – This event type indicates that the recipient received the message as a background notification.”).

7. Another core aspect of the accused systems is Firebase Cloud Messaging (“FCM”). Amazon uses FCM to send push notifications to Amazon apps (e.g., Amazon Shopping, Prime Video, Kindle, Amazon Music, Audible, Ring, Alexa, and Whole Foods Market) on millions of Android devices. As Google’s corporate representative Mr. Todd Hansen testified at the trial in Case No. 2:23-CV-00103-JRG-RSP (“103 Case”): “Q. Now, how many devices use

FCM today? A. Billions of devices.” 103 Case, Trial Tr. 732:7-8. For example, Amazon uses FCM to send notifications such as “Your package was delivered,” “Flash Sale starts now,” and “New episode available” to reap similar benefits as it does from ADM, including by driving and monetizing user engagement.

8. As with ADM, Amazon also collects behavioral user data from FCM, including by tracking the open rate and click through performance of push notifications using analytics returned through FCM. Amazon uses this data to drive increased sales through personalized recommendations, time sensitive promotions (e.g., Prime Day, Lightning Deals), and re-engagement campaigns targeted at dormant users. FCM’s delivery of time critical notifications (e.g., Alexa reminders, order confirmations, Ring security alerts, etc.) is also vital to Amazon’s brand reputation and the user experience of its customers.

9. On information and belief, Amazon’s revenues derived from ADM and FCM since 2019 extend well into the billions of dollars.

#### **BACKGROUND REGARDING HEADWATER AND DR. RALEIGH**

10. Dr. Gregory Raleigh—the inventor of the Asserted Patents—is a world-renowned scientist, inventor, and entrepreneur, with over 25 years of executive experience in several technology sectors including networking, cloud software, consumer services, wireless and military systems. Dr. Raleigh holds Ph.D. and Masters degrees in Electrical Engineering from Stanford University, and is the inventor of over 350 issued U.S. and international patents in several fields including radio systems and components, radar, mobile operating systems, cloud services, IoT, networking, consumer electronics, radiation beam cancer therapy and medical imaging.

11. Dr. Raleigh has a long and distinguished record of significant contributions and advancements in wireless communications technology. His inventions, companies, and products

have profoundly and positively impacted virtually every aspect of the mobile device and communications market. In 2005, Dr. Raleigh was named one of the “50 most powerful people in networking” because of his discoveries in wireless technology, and his work in multiplying the capacity of a radio link using multiple transmission and receiving antennas to exploit multipath propagation was described as the “most important wireless technology in the works.” *See* <https://web.archive.org/web/20220628132409/https://www.networkworld.com/article/2316916/the-50-most-powerful-people-in-networking.html?page=2>.

12. In 1996, while at Stanford University, Dr. Raleigh presented the first mathematical proof demonstrating that multiple antennas may be used with special signal processing techniques to transmit multiple data streams at the same time and on the same frequency while in the presence of naturally occurring multipath propagation. Dr. Raleigh’s work at Stanford has been widely adopted in modern multiple-input and multiple-output (“MIMO”) radio communication and implemented in major wireless communication standards including 4G and 5G. *See, e.g.,* [https://en.wikipedia.org/wiki/Gregory\\_Raleigh](https://en.wikipedia.org/wiki/Gregory_Raleigh).

13. Dr. Raleigh’s groundbreaking work solved problems that had existed in wireless communication since the late 1800s and overturned a century of research and practice in the fields of radio science and wireless communication theory. His work revealed that a new class of MIMO signal processing architectures would allow wireless devices to transmit multiple data streams at the same time on the same frequency thereby multiplying the capacity of wireless networks.

14. Based on his discoveries, Dr. Raleigh co-founded Clarity Wireless to develop smart antenna products incorporating the advances of his MIMO signal processing architecture, and obtained patents now used in 4G and 5G cellular and Wi-Fi standards. Field trials of the smart antennas developed by Clarity Wireless demonstrated performance significantly above anything

else contemplated at the time and continue to set standards for multipath broadband wireless access links. Shortly after those field trials, Cisco acquired Clarity in 1998 and hired Dr. Raleigh to continue to commercialize these technologies.

15. After leaving Cisco, Dr. Raleigh founded Airgo Networks to develop the world's first MIMO wireless chipsets, networking software, reference design systems and commercial OEM products. Airgo Networks' chipset products significantly improved the speed and reliability of Wi-Fi, leading to the adoption of its technology as the core of Wi-Fi radio standards since 2006, and adoption of the chipsets into products sold across the globe. In 2006, Qualcomm acquired Airgo Networks and hired Dr. Raleigh to continue to commercialize these technologies. The Airgo team at Qualcomm spearheaded the creation of Wi-Fi standards and developed the first Qualcomm Wi-Fi chips for cell phones.

16. Dr. Raleigh's innovations at Clarity Wireless, Cisco, Airgo Networks, and Qualcomm, resulted in widespread adoption of his technologies in a multitude of cellular and Wi-Fi standards, such as LTE, WiMAX, 802.11n, 802.11ac (Wi-Fi 5), and 802.11ax (Wi-Fi 6).

17. After successfully founding and selling Clarity Wireless and Airgo Networks to Cisco and Qualcomm, respectively, Dr. Raleigh shifted his focus from solving radio-centric problems to solving problems in how wireless services are provided to consumers. Dr. Raleigh foresaw significant data demand problems presented by the advent and adoption of smartphones. He sought to solve these data demand problems by improving end-user wireless devices and the services that support them.

18. In 2008, Dr. Raleigh formed Headwater to develop mobile operating systems and cloud technology, which today, underpin the mobile phone and app industries. The patents in this action describe and claim some of the extraordinary inventions developed by Dr. Raleigh.

**PLAINTIFF HEADWATER AND THE ASSERTED PATENTS**

19. Plaintiff Headwater was formed in 2011 and has been in continued existence and operation since that time. Headwater is a Texas limited liability company organized under the laws of Texas, with its headquarters at 110 North College Avenue, Suite 1116, Tyler, Texas 75702.

20. Headwater is the owner of U.S. Patent No. 9,615,192, titled “Message link server with plural message delivery triggers,” which issued April 4, 2017.

21. Headwater is the owner of U.S. Patent No. 10,321,320, titled “Wireless network buffered message system,” which issued June 11, 2019.

**DEFENDANT AMAZON AND THE ACCUSED INSTRUMENTALITIES**

22. On information and belief, Defendant Amazon.com, Inc. is a Delaware corporation with a principal place of business at 410 Terry Ave. North, Seattle, WA 98109.

23. On information and belief, Defendant Amazon.com Services LLC is a Delaware limited liability company with a principal place of business at 410 Terry Avenue North, Seattle, WA 98109.

24. On information and belief, Amazon Web Services, Inc. is a Delaware corporation with a principal place of business at 410 Terry Ave. North, Seattle, WA 98109.

25. The Accused Instrumentalities include the Amazon Device Messaging (ADM) and Firebase Cloud Messaging systems and any related components or entities identified in Exhibits 1-4.

**JURISDICTION AND VENUE**

26. This action arises under the patent laws of the United States, 35 U.S.C. § 1 et seq.

27. This Court has original subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

28. This Court has personal jurisdiction over Amazon in this action because Amazon has committed acts of infringement within this District giving rise to this action, has a regular and established place of business in this District, and has established minimum contacts with this forum such that the exercise of jurisdiction over Amazon would not offend traditional notions of fair play and substantial justice. Amazon, directly and/or through subsidiaries or intermediaries, conducts its business extensively throughout Texas, by shipping, distributing, offering for sale, selling, and advertising its products and/or services in Texas and the Western District of Texas, regularly does business or solicits business, engages in other persistent courses of conduct, and/or derives substantial revenue from products and/or services provided to individuals in Texas, and commits acts of infringement of Headwater's patents in this District by, among other things, supplying, distributing, developing, making, using, offering to sell, and selling ADM-enabled devices and ADM-related services.

29. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b). On information and belief, Amazon resides in this District and/or has committed acts of infringement and has a regular and established place of business in this District.

30. On information and belief, Amazon operates ADM servers in this District, which act as the always-on ADM ingress and egress points for ADM-enabled devices (e.g., Fire OS devices, Fire TV sticks, Echo Show units, and other Amazon-branded devices) in this District. These servers maintain a persistent channel with each device through which ADM push messages are sent.

31. On information and belief, Amazon uses FCM MCS servers in this District, which act as the always-on FCM ingress and egress points for Android devices in this District. These servers maintain the persistent MCS channel between those Android devices and the FCM server

through which push messages are sent to the intended devices.

32. On information and belief, Amazon employs engineering, product-operations, and developer-relations teams at its Austin Tech Hub, including personnel who work on ADM and the Amazon Appstore . From their offices in this District, these employees design, test, schedule, and transmit push-notification campaigns on behalf of Amazon and collaborating app developers, for delivery through ADM and FCM, including the provisioning of ADM/FCM credentials and message templates used to reach end-users in the District.

33. On information and belief, numerous third-party app developers—such as ESPN/Disney+, Ring, and Hulu—use Amazon’s infringing ADM system in this District to send push messages to their applications running on Fire devices and other ADM-enabled devices.

#### **COUNT 1 – INFRINGEMENT OF THE ’192 PATENT**

34. Headwater incorporates by reference each of the allegations in the foregoing paragraphs as if fully set forth herein and further alleges as follows:

35. On April 4, 2017, the United States Patent and Trademark Office issued U.S. Patent No. 9,615,192, titled “Message link server with plural message delivery triggers.”

36. Headwater is the owner of the ’192 patent with full rights to pursue recover of royalties for damages for infringement, including full rights to recover past and future damages.

37. The written description of the ’192 patent describes in technical detail each limitation of the claims, allowing a skilled artisan to understand the scope of the claims and how the nonconventional and non-generic combination of claim limitations is patently distinct from and improved upon what may have been considered conventional or generic in the art at the time of the invention.

38. Headwater and its predecessors in interest have satisfied the requirements of



35 U.S.C. § 287(a) with respect to the '192 patent, and Headwater is entitled to damages for Amazon's past infringement.

39. Amazon has directly infringed (literally and equivalently) and induced others to infringe the '192 patent by making, using, selling, offering for sale, or importing products that infringe the claims of the '192 patent and by inducing others to infringe the claims of the '192 patent without a license or permission from Headwater, such as for example inducing any app developers to use the infringing ADM and FCM systems.

40. Exhibits 1 and 2 provide a description of the Accused Instrumentalities and a chart showing how they infringe claim 1 of the '192 patent, which Headwater provides without the benefit of information about the Accused Instrumentalities obtained through discovery.

41. Amazon knowingly and intentionally induces and contributes to infringement of the '192 patent in violation of 35 U.S.C. §§ 271(b)-(c). For example, at least since receipt of this Complaint, Amazon has had knowledge of or has been willfully blind to its infringement of the '192 patent.

42. Despite this knowledge, Amazon continues to actively encourage and instruct their customers to use and integrate the Accused Instrumentalities in ways that directly infringe the '192 patent. Amazon does so knowing and intending that their customers will commit these infringing acts. Amazon also continues to make, use, offer for sale, sell, and/or import the Accused Instrumentalities, despite its knowledge of the '192 patent, thereby specifically intending for and inducing their customers to infringe the '192 patent through the normal and customary use of the Accused Instrumentalities. On information and belief, these acts include providing information and instructions on the use of the Accused Instrumentalities; providing information, education and instructions to their customers; and indemnifying patent infringement within the United States.

43. Amazon has known, or has been willfully blind to the fact, that making, using, offering to sell, and selling the Accused Instrumentalities to their customers, would constitute willful infringement of the '192 patent.

44. Headwater has been damaged by Amazon's infringement of the '192 patent and is entitled to damages as provided for in 35 U.S.C. § 284, including reasonable royalty damages.

### **COUNT 2 – INFRINGEMENT OF THE '320 PATENT**

45. Headwater incorporates by reference each of the allegations in the foregoing paragraphs as if fully set forth herein and further alleges as follows:

46. On June 11, 2019, the United States Patent and Trademark Office issued U.S. Patent No. 10,321,320, titled "Wireless network buffered message system."

47. Headwater is the owner of the '320 patent with full rights to pursue recover of royalties for damages for infringement, including full rights to recover past and future damages.

48. The written description of the '320 patent describes in technical detail each limitation of the claims, allowing a skilled artisan to understand the scope of the claims and how the nonconventional and non-generic combination of claim limitations is patently distinct from and improved upon what may have been considered conventional or generic in the art at the time of the invention.

49. Headwater and its predecessors in interest have satisfied the requirements of 35 U.S.C. § 287(a) with respect to the '320 patent, and Headwater is entitled to damages for Amazon's past infringement.

50. Amazon has directly infringed (literally and equivalently) and induced others to infringe the '320 patent by making, using, selling, offering for sale, or importing products that infringe the claims of the '320 patent and by inducing others to infringe the claims of

the '320 patent without a license or permission from Headwater, such as for example inducing any app developers to use the infringing ADM system.

51. Exhibits 3 and 4 provide a description of the Accused Instrumentalities and a chart showing how they infringe claim 1 of the '320 patent, which Headwater provides without the benefit of information about the Accused Instrumentalities obtained through discovery.

52. Amazon knowingly and intentionally induces and contributes to infringement of the '320 patent in violation of 35 U.S.C. §§ 271(b)-(c). For example, at least since receipt of this Complaint, Amazon has had knowledge of or has been willfully blind to its infringement of the '320 patent.

53. Despite this knowledge, Amazon continues to actively encourage and instruct their customers to use and integrate the Accused Instrumentalities in ways that directly infringe the '320 patent. Amazon does so knowing and intending that their customers will commit these infringing acts. Amazon also continues to make, use, offer for sale, sell, and/or import the Accused Instrumentalities, despite its knowledge of the '320 patent, thereby specifically intending for and inducing their customers to infringe the '320 patent through the normal and customary use of the Accused Instrumentalities. On information and belief, these acts include providing information and instructions on the use of the Accused Instrumentalities; providing information, education and instructions to their customers; and indemnifying patent infringement within the United States.

54. Amazon has known, or has been willfully blind to the fact, that making, using, offering to sell, and selling the Accused Instrumentalities to their customers, would constitute willful infringement of the '320 patent.

55. Headwater has been damaged by Amazon's infringement of the '320 patent and is entitled to damages as provided for in 35 U.S.C. § 284, including reasonable royalty damages.

**JURY DEMAND**

56. Headwater demands a jury trial pursuant to Federal Rule of Civil Procedure 38.

**RELIEF REQUESTED**

Headwater prays for the following relief:

- A. A judgment in favor of Headwater that Amazon has infringed the Asserted Patents, and that the Asserted Patents are valid and enforceable;
- B. A judgment and order requiring Amazon to pay Headwater past and future damages arising out of Amazon's infringement of the Asserted Patents in an amount no less than a reasonable royalty, costs, expenses, and pre- and post-judgment interest, as provided under 35 U.S.C. § 284;
- C. A judgment and order requiring Amazon to provide an accounting and to pay supplemental damages to Headwater, including, without limitation, pre-judgment and post-judgment interest;
- D. A judgment that Amazon's infringement is willful and enhanced damages and fees as a result of that willfulness under 35 U.S.C. § 284;
- E. A finding that this case is exceptional under 35 U.S.C. § 285, and an award of Headwater's reasonable attorney's fees and costs; and
- F. Any and all other relief to which Headwater may be entitled.

Dated: June 20, 2025

Respectfully submitted,

/s/ Marc Fenster

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